

clarion Service Manual

Published by Service Administration Section



Model 880NP



Model 882NP



Model 887NP



Model 889NP

MW/LW/UKW CASSETTE STEREO

880NP (PE-9223A)
882NP (PE-9243A)
887NP (PE-9222A)
889NP (PE-9242A)

Model

■ SPECIFICATIONS:

[RADIO SECTION]

Circuit system: Super heterodyne
Tuning system: Electronic Tuning
Receive range: UKW 87.5MHz to 108.0MHz
MW 531kHz to 1,602kHz
LW 153kHz to 281kHz

Intermediate frequency:

UKW 10.7MHz
M/L 459kHz

Quieting sensitivity: UKW Less than 15dB
(at 30dB S/N)

MW Less than 33dB
(at 20dB S/N)

LW Less than 40dB
(at 20dB S/N)

Separation: UKW More than 20dB

Fidelity: UKW 100Hz 0 ± 3 dB
1kHz 0dB
7kHz -10 ± 5 dB
M/L 100Hz 1 ± 3 dB
1kHz 0dB
4kHz -18 ± 5 dB

[TAPE SECTION]

Reproduction system: 4 track, 2 channel stereo
cassette tape playback

Tape speed: 4.76cm/sec.

Wow & flutter: Less than 0.25% (W.R.M.S)
Separation: More than 30dB
Crosstalk: More than 40dB
S/N ratio: More than 45dB
FF time: Less than 190sec. (C-60)

[SYNTHESIS]

Load impedance: 4Ω
Power output: $3W \times 2$
(at 3% distortion)
 $5W \times 2$
(at max. output)

Power supply voltage:
DC 13.2V
(10.8V to 15.6V)
Negative ground

Current consumption:
Less than 3A

Dimensions: (880NP Width 178mm
887NP Height 50mm
Depth 150mm

Weight: 1.1kg

Dimensions: (882NP Width 181.5mm
889NP Height 52.5mm
Depth 160mm

Weight: 1.6kg

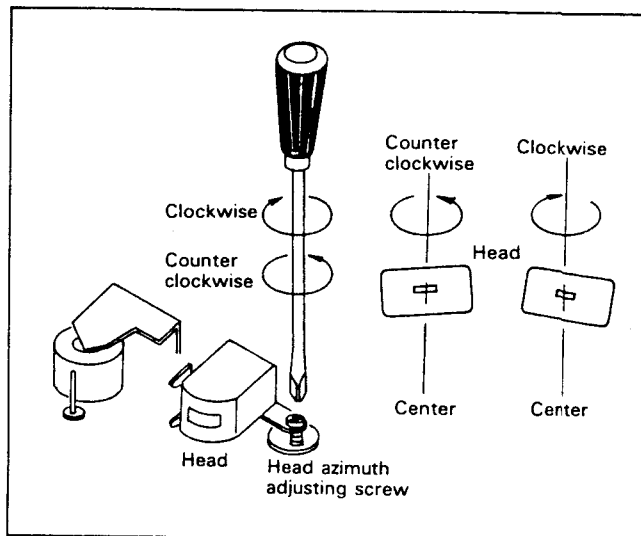
■COMPONENTS:

- 880NP (PE-9223A-A)
- 882NP (PE-9243A-A)
- 887NP (PE-9222A-A)
- 889NP (PE-9242A-A)

Main unit		1
Parts bag	921-8461-00	1
Use only 880NP, 887NP		
{ Hook plate	330-8216-00	2
{ Spacer	345-3653-01	1
{ Tap screw	700-5016-80	1
{ Hex nut	723-5000-21	1
{ Plate nut	725-0216-00	1
{ Flat washer	740-5000-10	1
Parts bag	921-1470-00	1
Use only 880NP, 887NP		
{ Escutcheon	370-3981-00	1
Parts bag	921-8462-00	1
Use only 882NP, 889NP		
{ Spacer	345-3653-01	1
{ Tap screw	700-5016-80	1
{ Hex nut	723-5000-21	1
{ Plate nut	725-0216-00	1
{ Flat washer	740-5000-10	1

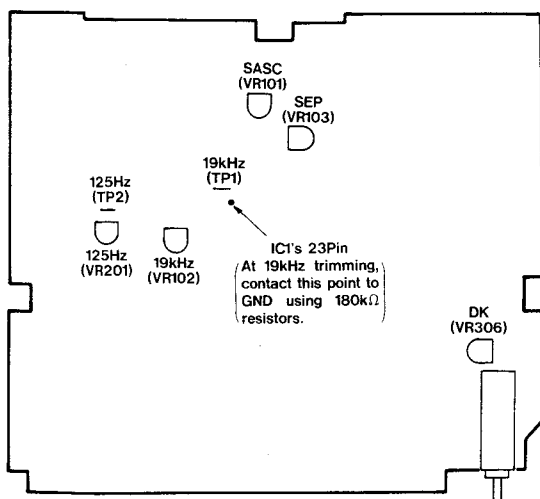
■HEAD AZIMUTH ADJUSTMENT:

Play the test tape 6.3kHz, -10VU and adjust by turning the head azimuth adjusting screw so that the output level becomes close to maximum.



■ADJUSTMENT:

●ADJUSTMENT POINT



■EXPLANATION OF IC's:

Refer to description in IC service manual vol 1.

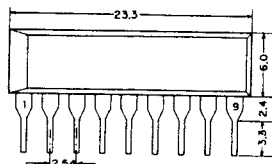
LA3365	051-0501-00	MPX Stereo Demodulator	P15
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Refer to description in IC service manual vol 2.

TA7411AP	051-0798-00	FM IF System	P8
TA7271PCL	051-0656-01	AF Power Amp	P33
LA2220	051-0739-00	ARI System SK TYPE	P11

AN7254	051-0356-00	FM Front End Circuit
AN7254A	051-0356-01	
AN7254B	051-0356-02	
AN7254C	051-0356-03	

■Outward Form



■Description

AN7254 is a semiconductor IC of FM front end without RF amplifier designed for car-born radio. It incorporates frequency converter, local oscillator, IF amplifier and AGC amplifier.

■Difference

	Pin lead (mm)	Output (mV)		
		min.	typ.	max.
051-0356-00	3.0		—	—
051-0356-01	3.3	50	—	75
051-0356-02	3.3	65	—	100
051-0356-03				

■Absolute Maximum Ratings (Ta=25°C)

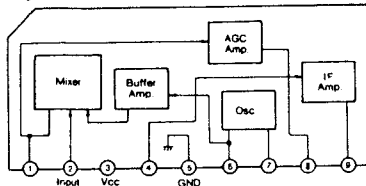
Item	Symbol	Rating	Unit
Power voltage	V _{CC}	9.8	V
Power current	I _{CC}	28	mA
Allowable loss	P _D	275	mW

■Electrical characteristics (V_{CC}=5V, f_i=98MHz, f_o=400Hz, 30%, Ta=25°C)

Item	Symbol	Test Circuit	Condition	min	typ	max	Unit
Oscillation voltage	V _{osc}	1	f _{osc} =108.7MHz	308		463	mV
AGC voltage	V _{AGC}	1	V _i =85dB			1	V
Sensitivity	S	1	V _i =20dB when 54dB is set as 0dB	-5.4	-3.7	-2	dB
Signal to noise ratio	S/N	1	V _i =20dB	18			dB

Note: Operation guaranteed power voltage V_{CC(min)}=6.5 ~ 9.8V

■Block Diagram

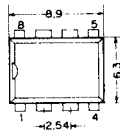


■Pin Assignments

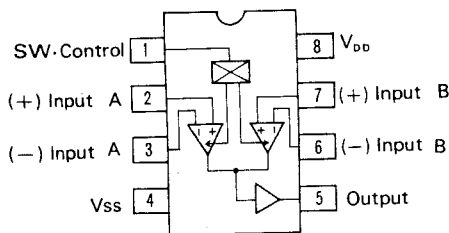
Pin No.	Pin Names
1	Mixer Output
2	Mixer Input
3	V _{CC}
4	IF Amp Input
5	GND
6	Osc Base
7	Osc Emitter
8	AGC Output
9	IF Amp Output

■M5201P 051-0853-00 Switch OP Amp (2 Input 1 Output)

Outward Form



Block Diagram

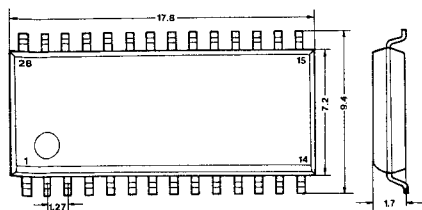


Outline

This IC is an operation amplifier provided with an analog switch function. It has 2-system inputs (A and B) and 1 output. It has 2 input differential circuit systems (A and B), 1 output circuit system and a switch circuit incorporated. By externally setting a control terminal to H/L, either input A or B is turned on, thus enabling operation similarly as conventional operation amplifiers. Under a voltage follower condition of Gv=0dB, it works as just an analog switch. It is also possible to independently set gains for A and B as a switch function plus an amplifier.

■AN7465S 051-0987-00 FM MPX Stereo Demodulator

Outward Form



Absolute Maximum Ratings (Ta=25°C)

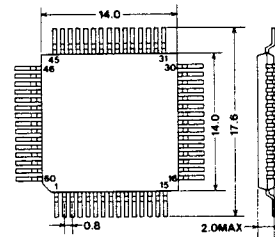
Supply Voltage	V _{CC}	10V
Lamp Drive Current	I _D	30mA
Power Dissipation	P _D	520mW

Explanation of Terminals

No.	Function
1	Low pass filter for noise AMP
2	Low pass filter for noise AMP
3	Constant at time applying AGC voltage
4	Constant at time of gate pulse width
5	Signal holding capacitor
6	FM noise suppressing circuit signal output
7	FM stereo MPX demodulator signal input
8	ATC low-pass filter
9	Resistor for adjusting the separation degree
10	Sound tone control terminal
11	Separation degree control terminal
12	Left channel output
13	Right channel output
14	Forced monoaural VCO stop terminal
15	Pilot signal detection low pass filter
16	Pilot signal detection low pass filter
17	Stereo lamp driver
18	Ground
19	PLL low-pass filter
20	PLL low-pass filter
21	Connect VCO oscillating CR
22	Pycan control low pass filter
23	Pycan control low pass filter
24	Pycan negating wave generation capacitor
25	Vcc
26	Signal input
27	High-pass filter control
28	Vref (standard voltage)

■TC9304F-006-US 051-1019-00 DTS MICRO-Controller Incorporating LCD Driver

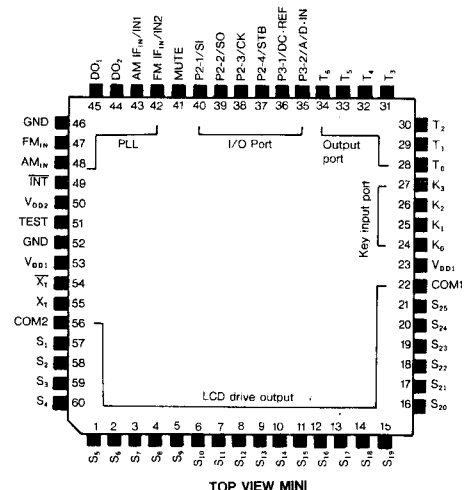
Outward Form



Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage	V _{DD}	-0.3~6.0	V
Input voltage	V _{IN}	-0.3~V _{DD} +0.3	V
Power dissipation	P _D	400	mW

Terminal Connection

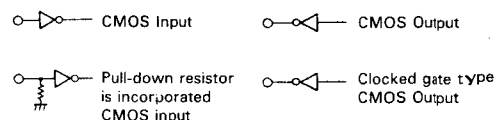


Description of Terminal Functions

Pin No.	Symbol	Terminal name	Function
22 56	COM1 COM2	LCD common output	Common signal output for LCD With the matrix of $S_1 \sim S_{25}$, max. 50 segments can be displayed. Three-value levels of V_{DD1} , $1/2 V_{DD1}$ and GND at intervals of 5ms are output to this terminal at 50Hz of cycle. (Note) At time of system reset, and executing time of CKSTP command and DISP OFF, output is automatically fixed to "L" level.
57~60 1~21	$S_1 \sim S_4$ $S_7 \sim S_{25}$	LCD segment output	Segment signal output terminal for LCD With the matrix of COM1 and COM2, max. 50 segments can be displayed. Data are output to these terminals by executing SEG command (COM1 system) and MARK command. Segment can be decoded by making the decode pattern in ROM area and executing it by DAL command. (Note) At time of system reset, and executing time of CKSTP command and DISP OFF, output is automatically fixed to "L" level.
24~27	$K_0 \sim K_3$	Key input port	These are 4 bit input ports used for inputting the key matrix. When the key command which designates this port for the operand unit is executed, data of these terminals can be input into RAM. Each terminal incorporates the pull-down resistor. Output ports, $T_0 \sim T_6$, are normally used for the key return timing signal output.
28~34	$T_0 \sim T_6$	Key timing output port	4 bit ($T_0 \sim T_3$) and 3 bit ($T_4 \sim T_6$) output ports. These are normally used for the key return timing signal output of key matrix.
35	P3-2 /A/D-IN	I/O Port 3 A-D /Analog voltage input	2 bit I/O port This port can be designated for the input/output for each bit. This designation can be made according to the contents of inner port called PORT-3 I/O CONTROL. This terminal can also be used for the analog input of the incorporated 4 bit A/D converter. A/D converter input is switched according to the contents of PORT-3 I/O CONTROL PORT. The incorporated A/D converter uses the method of successive comparison. P3-1 is the standard voltage input and P3-2 is the analog comparison voltage input.
36	P3-1 /DC-REF	/Standard voltage input	
37~40	P2-4 /STB P2-3 /CK P2-2 /SO P2-1 /SI	I/O Port 2 /Strobe pulse out /Serial clock out /Serial data out /Serial data in	This is I/O port of 4 bits. This port can indicate input/output of each bit, and this indication is made by the content of inside port, called "Port-2 I/O control". Also, this terminal is combinedly used with interface (SIO). Shifting control of SIO is made by the content of SIO ON bit. By the use of this serial interface, SIO-command can be executed, thus, the peripheral unit option IC can be strongly controlled. Serial transfer type can select 2 types of NCD/NCD modes by programs.
41	MUTE	Muting signal output port	1 bit output port which is usually used as a muting control signal output.
42	FM IF _{IN} /IN2	FM IF signal input /input port 2	This is IF-signal input terminal of IF-counter detecting the auto-stop independently for each band of FM or AM.
43	AM IF _{IN} /IN1	AM IF signal input /input port 1	It has the built-in input AMP, and is operated by C-connecting small amplitude. This terminal can be used as input port by programs. This selection can be made by the content of IN-control port.
44 45	DO2 DO1	Phase comparator output	This is the output terminal for phase-comparator of PLL. DO1 and DO2 are output in parallel, thereby, filter constant can be optimally designed for each band of FM/AM.
46	GND	Prescaler unit GND terminal	This is an earth terminal used exclusively for the built-in prescaler.
47	FM _{IN}	FM-station transmitting signal input	This is a prescaler input terminal at time of FM-band. Input the local oscillation output (VCO output) of 50~140MHz. C-connecting small amplitude operation is made with the built-in input AMP.

Pin No.	Symbol	Terminal name	Function
48	AM _{IN}	AM-station transmitting signal input	This is a programmable counter input terminal at time of AM-band. By PLL command, free shifting can be made for direct division system (LF mode) and pulse swallow system (HF mode).
49	INT	Initialize input	System reset signal input terminal for device. While INT is on "L" level, the reset is actuated and when it is on "H" level, the program starts from 0 address. Normally, the system reset is "on" (power reset on) when the voltage, 0V~4.5V, is applied to V_{DD} , and therefore this terminal is fixed on "H" level. (Note) After the system-reset is actuated, I/O port is set in the input mode, but the output of output port is not decided yet. It is therefore necessary to initialize it with a program whenever required to do so.
50	V_{DD2}	Prescaler unit power applying terminal (INH input terminal)	This is a power applying terminal at prescaler unit. Usually, apply the voltage $5V \pm 10\%$. For V_{DD2} , apply the voltage of $V_{DD2} \leq V_{DD1}$. Also, this terminal is commonly used with input terminal of INH port, and it is a selecting signal input of radio mode. With "H" level input, it is judged as radio ON. With "L" level input, it is judged as radio-OFF mode. In the use of CKSTP command in the program, if this command is executed in "L" level of V_{DD2} terminal, the operations of inside-clock generator and CPU are stopped, and it is possible to make memory-back up state by low-consuming current (less than $1\mu A$), at this time, all output-terminals (display output, output port, etc.) are set to "L" level automatically. (Note) CKSTP command is effective at time of "L" level, and in execution at time of "H" level, the same operation is made as that of NOOP command.
51	TEST	Test mode control input	Test mode control input terminal. Unit is in test mode when "H" level is input and it in normal operating condition when "L" level is input or when in NC condition. The pull-down resistor incorporated in this unit is normally fixed on NC or "L" level. In the test mode, the device functions as the evaluator chip and with the externally mounted simulation board, the program can be evaluated on EP ROM base.
52	GND	Terminal ground	Terminal to ground the CPU & PLL.
23 53	V_{DD1}	Terminal to apply power	Terminal to apply power to device. In the normal operation, voltage of $5V \pm 10\%$ is applied. In the backup condition (When CK STP command is executed), the voltage can be reduced to 2V. When 0V $\rightarrow$ 4.5V is applied to this terminal, the system reset is applied to the device, thus starting the program from 0 address. (Power on reset) (Note) Power on reset should be started from INH = "L" level. (Note) When the power is turned on, the contents of each board (output board, inner board, etc.) is not decided yet. It is therefore necessary to initialize with a program whenever required.
54 55	X_T X_T	Crystal	Crystal oscillator is connected to this terminal. A 7.2MHz crystal is connected. The crystal automatically stops oscillating when CK STP command is executed.

(Addition)



■PARTS LIST:

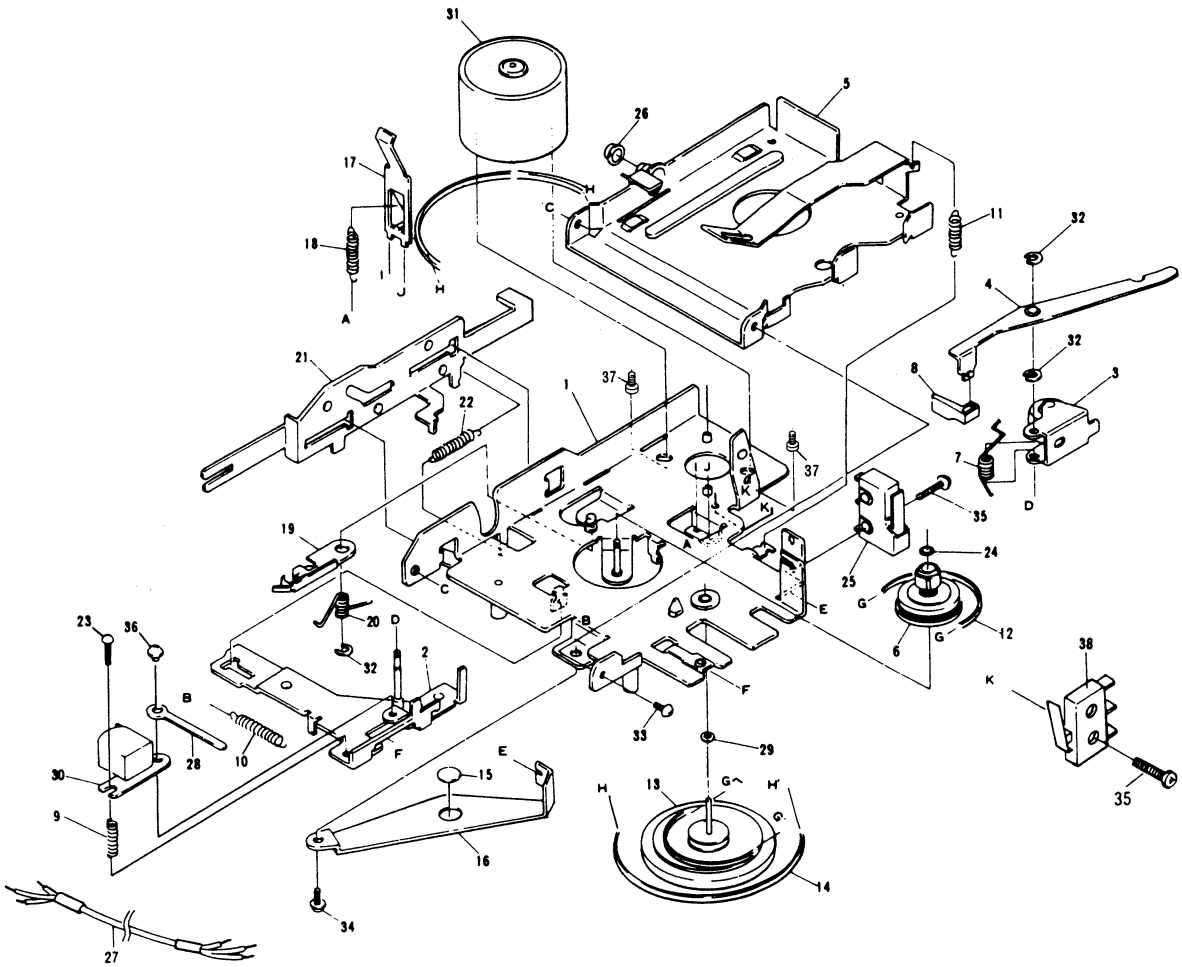
◎Electrical section
◎MAIN P.W.B

REF.NO.	PART NO.	DESCRIPTION	Q'TY
201,202,301 501~507 D509,510,515 516,522	001-0330-00	Diode D515 1SS119 D516 D505	15
D512~514	001-0360-00	Diode S5566B	3
D101	001-0366-00	Diode LTZ-MR15	1
D511	001-0425-19	Diode HZS5.6J	1
D203,401	001-0425-24	Diode HZS9.1J	2
L 501	009-0621-01	Choke	1
L 102	010-2046-00	Coil	1
L 101	010-2046-12	Coil	1
L 201	010-2046-17	Coil	1
VR103	012-4100-01	Variable resistor 1kΩ	1
VR306	012-4100-02	Variable resistor 2kΩ	1
VR102	012-4100-03	Variable resistor 5kΩ	1
VR201	012-4100-04	Variable resistor 10kΩ	1
VR101	012-4100-13	Variable resistor 30kΩ	1
CCT201	050-0103-00	Component circuit	1
IC3	051-0501-00	IC LA3365	1
IC6	051-0656-01	IC TA7271P	1
IC2	051-0739-00	IC LA2200	1
IC4,5	051-0853-00	IC M5201P	2
IC1	051-0987-00	IC AN7465S	1
IC7	051-1019-00	IC TC-9304F-006-US	1
X201	060-0115-01	Ceramic resonator	1
SUP201	060-0122-01	Surge protector	1
X501	061-1066-00	Crystal 7.2MHz	1
201,202,306 Q401,402,502 504	100-1048-00	Transistor 2SA1048	7
103,301,302 Q501,503,505	102-2458-00	Transistor 2SC2458-Y,GR,BL	6
Q204,205	102-2458-51	Transistor 2SC2458GR,BL	2
Q404	102-2655-00	Transistor 2SC2655-O,Y	1
Q303~305	103-1504-00	Transistor 2SD1504-D,E	3
101,102,203 Q206,403	125-2003-03	Transistor RN1203	5
R405	114-1501-11	Film resistor 1W15Ω OM	1
C220	042-0249-00	Electrolytic capacitor 16V0.22μF TAN	1
C106	043-0212-00	Ceramic capacitor 390pF P	1
C103	160-4712-05	Ceramic capacitor 470pF HD	1
C124,309,312	171-1023-06	Ceramic capacitor 1000pF SC	3

NOTE : OM (Oxidized Metal) SS (Super Small)
S (Small) TC (Temperature-Compensating)
HD (Higher Dielectric) LL (Low Leak)
SC (Semi-Conductor) USS (Ultra Super Small)

■EXPLODED VIEW・PARTS LIST:

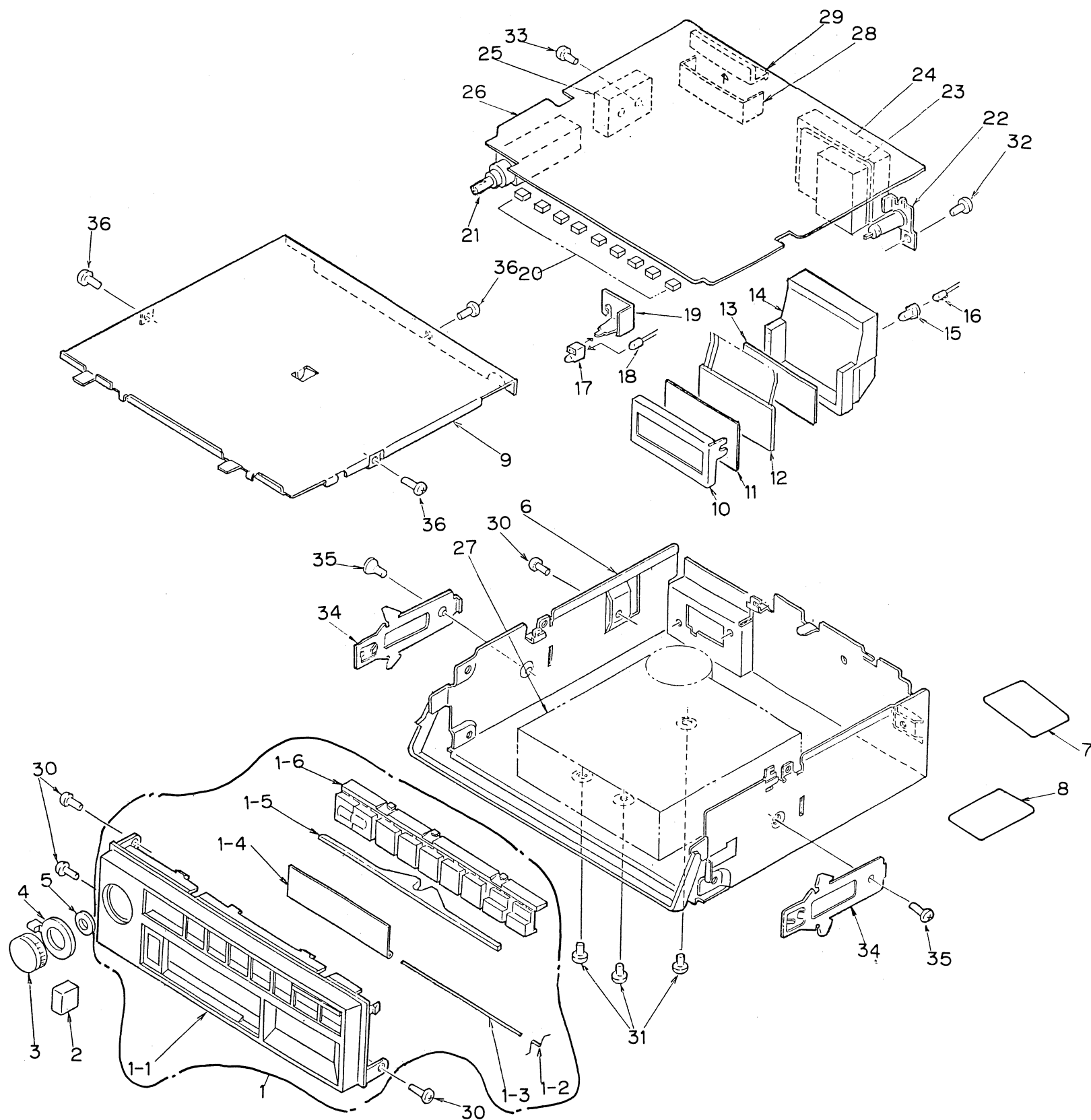
◎Tape mechanism section



REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY	REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	960-3224-02	Deck plate ass'y	1	20	750-1991-00	Spring	1
2	960-3225-02	Head plate ass'y	1	21	630-1257-04	Eject lever	1
3	960-3229-00	Roller ass'y	1	22	750-1992-00	Spring	1
4	960-3227-02	S-lever ass'y	1	23	716-0384-00	Screw (M2x8)	1
5	960-3226-06	Pack guide ass'y	1	24	746-0717-01	Flat washer	1
6	960-3228-04	Reel base ass'y	1	25	013-3505-00	Switch	1
7	750-1986-00	Spring	1	26	632-0999-00	Guide roller	1
8	631-0332-01	Sensor	1	27	815-1896-01	Head lead	1
9	750-1987-00	Spring	1	28	330-4896-00	Lead clamp	1
10	750-1988-01	Spring	1	29	746-0617-00	Flat washer	1
11	750-1989-01	Spring	1	30	011-0300-00	Head	1
12	602-0053-01	Belt	1	31	960-3521-00	D.C motor ass'y	1
13	611-0059-02	Flywheel	1	32	743-2000-10	E-ring (M2)	2
14	602-0062-00	Belt	1	33	714-3003-11	Machine screw (M3x3)	1
15	746-0767-10	Special washer	1	34	731-2605-81	Tap tight (M2.6x5)	1
16	630-1261-01	Flywheel plate	1	35	716-0438-00	Machine screw (M2.3x8.5)	2
17	630-1260-02	Eject plate	1	36	714-2003-81	Machine screw (M2x3)	1
18	750-1990-01	Spring	1	37	732-2604-11	Sems screw (M2.6x4)	2
19	630-1258-02	Lock cam	1	38	013-2690-02	Switch	1

EXPLODED VIEW • PARTS LIST:

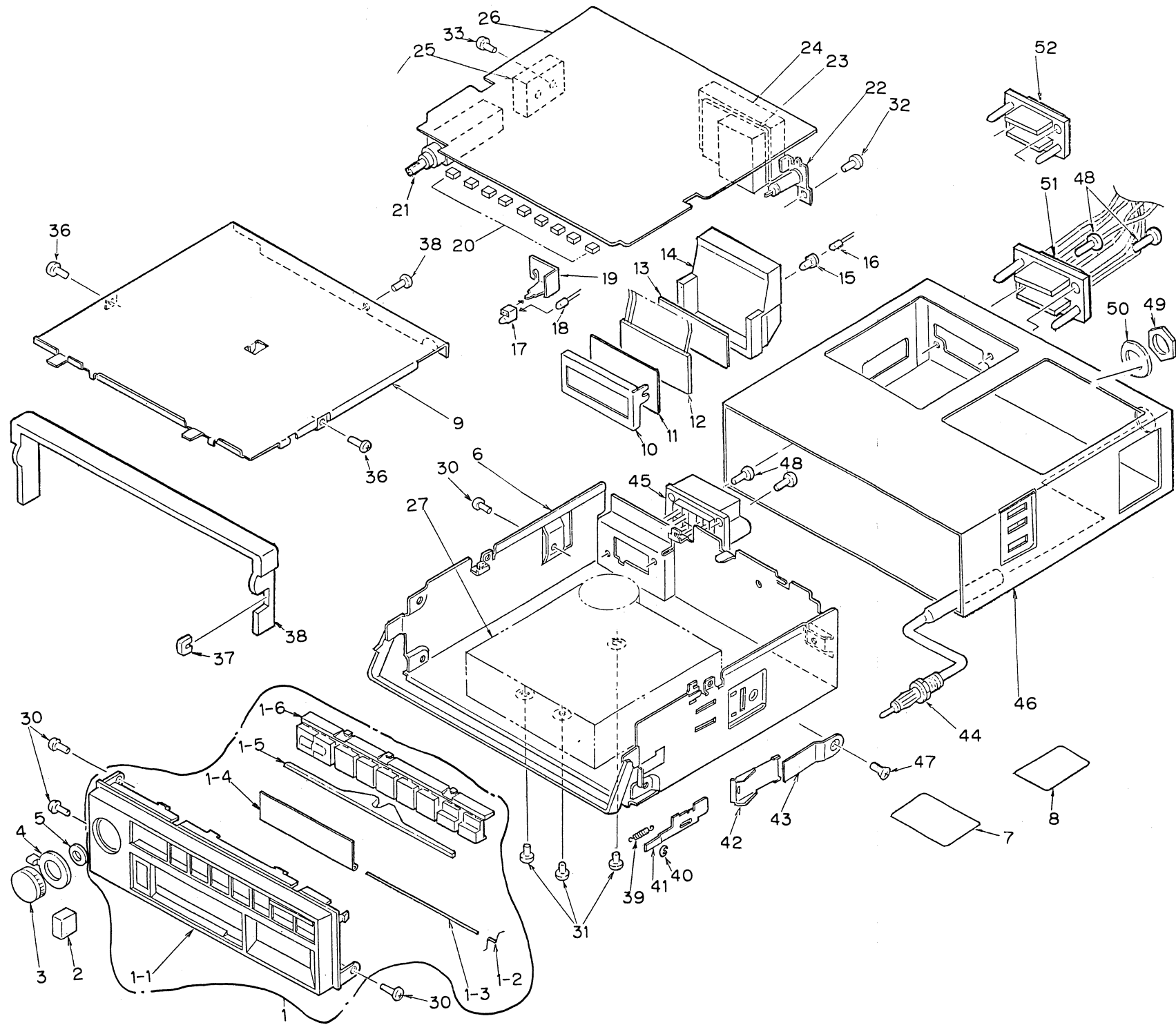
● 880NP, 887NP
◎ Main section



REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	940-0947A	Escutcheon ass'y Use only 887NP (PE-9222A)	1
	940-0948A	Escutcheon ass'y Use only 880NP (PE-9223A)	
1-1	370-4990-00	Escutcheon Use only 887NP (PE-9222A)	1
	370-4990-01	Escutcheon Use only 880NP (PE-9223A)	
1-2	750-2692-00	Spring	1
1-3	341-1278-00	Shaft	1
1-4	320-0422-00	Dustproof cover Use only 887NP (PE-9222A)	1
	320-0422-03	Dustproof cover Use only 880NP (PE-9223A)	
1-5	335-2719-00	Illumi. plate	1
1-6	382-1487-00	Button (PRESET)	1
2	382-1488-00	Button (FF/EJECT)	1
3	380-4824-02	Knob (ON/VOL)	1
4	380-4944-00	Knob (TONE)	1
5	722-0370-00	Special nut	1
6	311-1297-00	Lower case	1
7	286-6937-00	Set plate Use only 887NP (PE-9222A)	1
	286-6991-00	Set plate Use only 880NP (PE-9223A)	
8	285-0915-00	Guide label	1
9	303-0356-00	Upper cover	1
10	330-8600-00	Front cover	1
11	373-0499-00	Dial cover	1
12	379-0199-00	Indicator (LCD)	1
13	335-2509-02	Reflector	1
14	335-2405-00	LCD holder	1
15	345-4157-17	PL cap	1
16	017-0367-01	Pilot lamp (14V 100mA)	1
17	345-3087-14	Illumi. rubber	1
18	017-0377-01	Pilot lamp (16V 38mA)	1
19	330-8840-00	Lamp holder	1
20	013-3640-01	Switch	9
21	012-4708-00	VR Use only 887NP (PE-9222A)	1
	012-4709-00	VR Use only 880NP (PE-9223A)	
22	092-0611-01	Antenna receptacle	1
23	880-1415A	FM Block Ass'y	1
24	941-0159-52	AM Tuner Pack	1
25	330-8837-00	IC holder	1
26	099-8271-03	P.W.B	1
27	930-0468-01	Cassette mechanism	1
28	330-8836-00	Plug holder	1
29	076-0310-10	Plug	1
30	714-3006-89	Machine screw (M3x6)	4
31	714-3005-81	Machine screw (M3x5)	3
32	731-3006-80	Tap tight (M3x6)	1
33	714-3005-11	Machine screw (M3x5)	1
34	750-2486-00	Spring	2
35	714-3006-40	Machine screw (M3x6)	2
36	714-3004-80	Machine screw (M3x4)	3

EXPLODED VIEW • PARTS LIST:

● 882NP, 889NP
◎ Main section

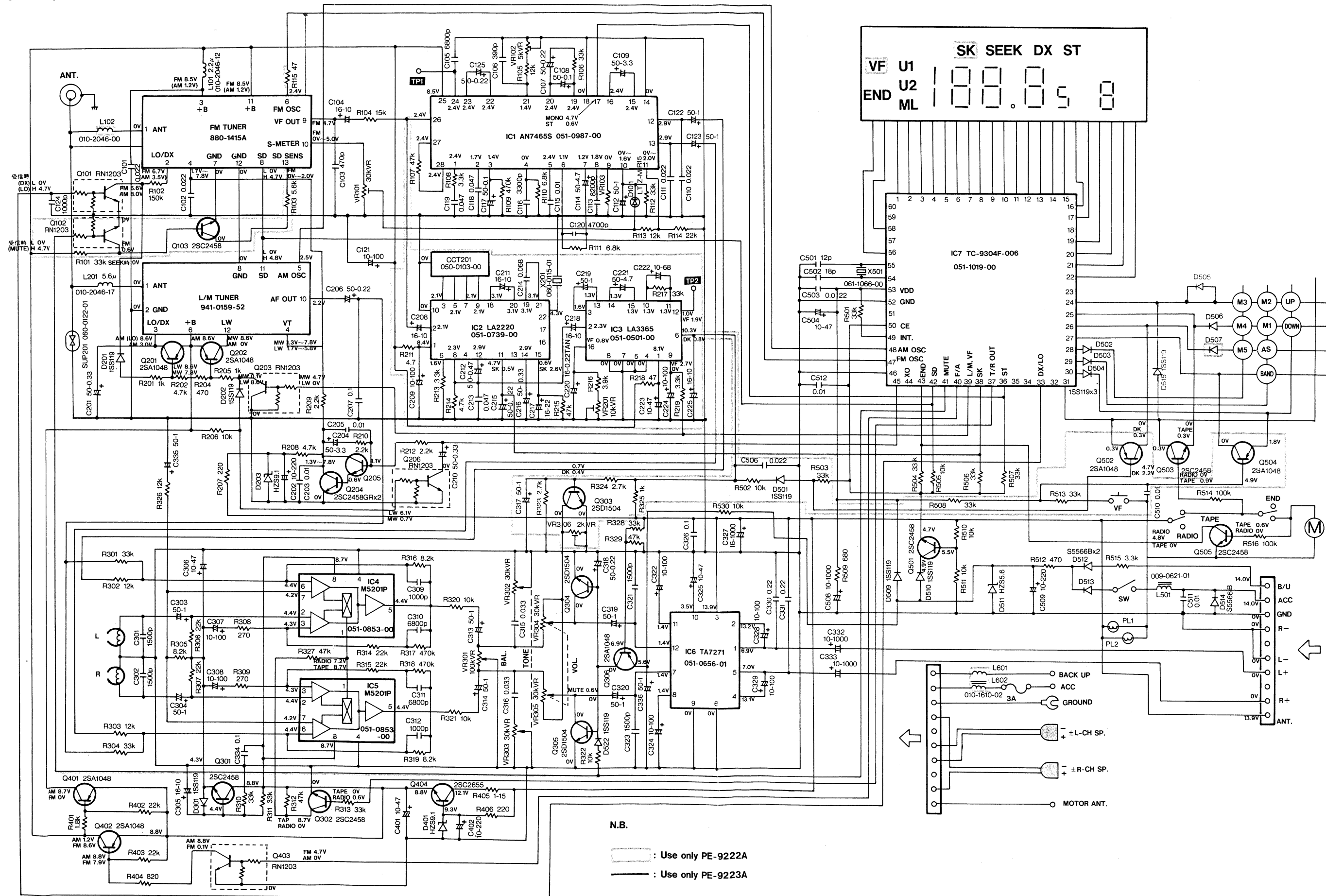


REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	940-0949A	Escutcheon ass'y Use only 889NP (PE-9242A)	1
	940-0950A	Escutcheon ass'y Use only 882NP (PE-9243A)	
1-1	370-4990-00	Escutcheon Use only 889NP (PE-9242A)	1
	370-4990-01	Escutcheon Use only 882NP (PE-9243A)	
1-2	750-2692-00	Spring	1
1-3	341-1278-00	Shaft	1
1-4	320-0422-01	Dustproof cover Use only 889NP (PE-9242A)	1
	320-0422-02	Dustproof cover Use only 882NP (PE-9243A)	

REF.NO.	PART NO.	DESCRIPTION	Q'TY
1-5	335-2719-00	Illumi. plate	1
1-6	382-1487-00	Button (PRESET)	1
2	382-1488-00	Button (FF/EJECT)	1
3	380-4824-02	Knob (ON/VOL)	1
4	380-4944-00	Knob (TONE)	1
5	722-0370-00	Special nut	1
6	311-1297-01	Lower case	1
7	286-6938-00	Set plate Use only 889NP (PE-9242A)	1
	286-6990-00	Set plate Use only 882NP (PE-9243A)	
8	285-0915-00	Guide label	1
9	303-0356-01	Upper cover	1
10	330-8600-00	Front cover	1
11	373-0499-00	Dial cover	1
12	379-0199-00	Indicator (LCD)	1
13	335-2509-02	Reflector	1
14	335-2405-00	LCD holder	1
15	345-4157-17	PL cap	1
16	017-0367-01	Pilot lamp (14V 100mA)	1
17	345-3087-14	Illumi. rubber	1
18	017-0377-01	Pilot lamp (16V 38mA)	1
19	330-8840-00	Lamp holder	1
20	013-3640-01	Switch	9
21	012-4708-00	VR Use only 889NP (PE-9242A)	1
	012-4709-00	VR Use only 882NP (PE-9243A)	
22	092-0611-01	Antenna receptacle	1
23	880-1415A	FM Block Ass'y	1
24	941-0159-52	AM Tuner Pack	1
25	330-8837-00	IC holder	1
26	099-8271-03	P.W.B	1
27	930-0468-01	Cassette mechanism	1
30	714-3006-89	Machine screw (M3x6)	4
31	714-3005-81	Machine screw (M3x5)	3
32	731-3006-80	Tap tight (M3x6)	1
33	714-3005-11	Machine screw (M3x5)	1
36	714-3004-80	Machine screw (M3x4)	3
37	382-1489-00	Button	1
38	370-4991-00	Escutcheon	1
39	750-2624-00	Spring	1
40	743-2500-10	E-ring	1
41	330-8839-00	Lever	1
42	330-8578-00	Hook plate	1
43	750-2625-00	Spring	1
44	093-1042-01	Antenna jumper	1
45	854-0226-00	EX lead	1
46	300-7447-00	MTG bracket	1
47	714-3006-40	Machine screw (M3x6)	1
48	731-3010-89	Tap tight (M3x10)	4
49	722-0518-00	ANT MTG nut	1
50	340-1446-00	Spacer	1
51	854-0227-00	EX lead Use only 889NP (PE-9242A)	1
52	854-0229-00	EX lead Use only 882NP (PE-9243A)	1

CIRCUIT DIAGRAM:

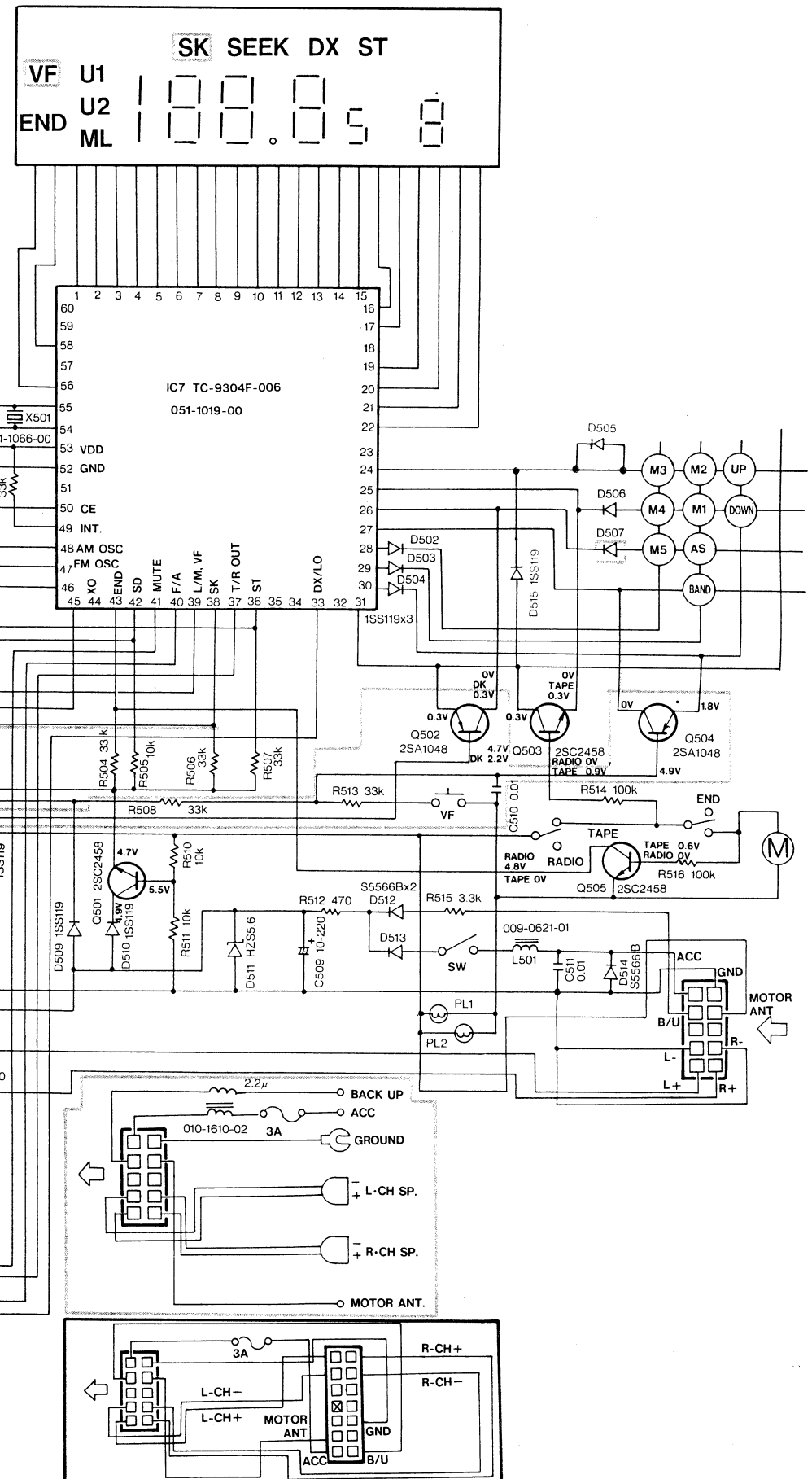
● 880NP, 887NP



● **880NP, 887NP**



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● **882NP, 889NP**



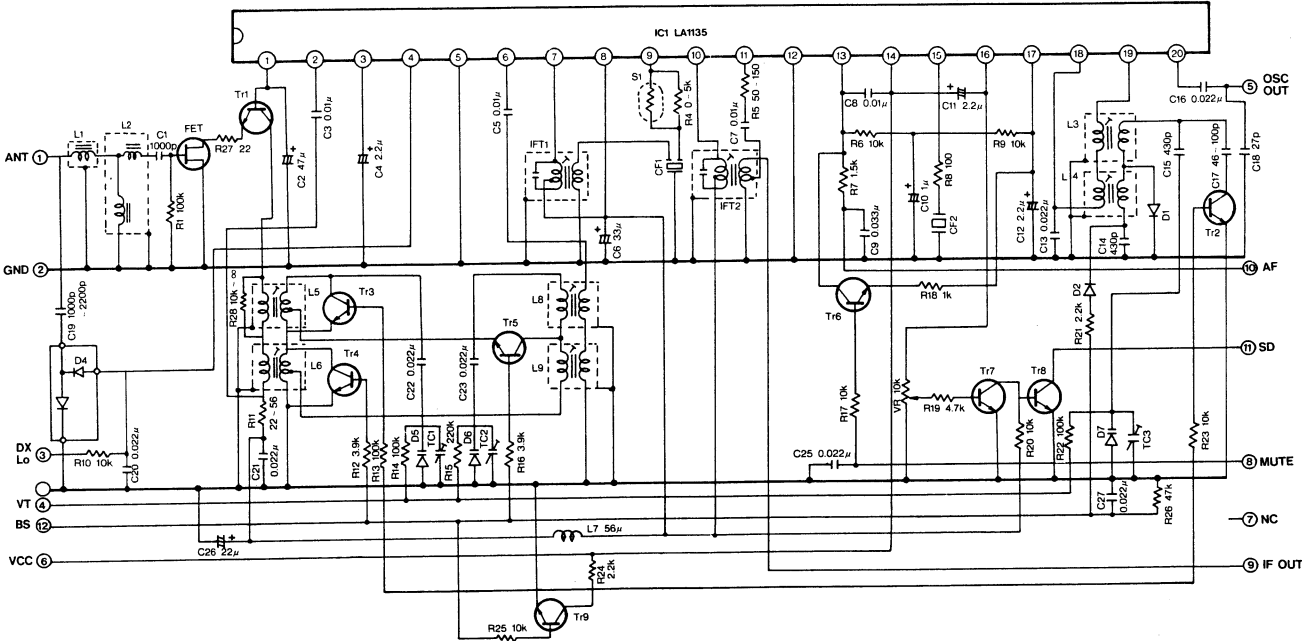
Use only 889NP (PE-9242A)

- Use only 882NP (PE-9243A)

880NP, 882NP, 887NP, 889NP

980NP,882NP,887NP,889NP

■AM TUNER PACK: (941-0159-52)



■FM BLOCK ASS'Y: (880-1415A)

